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# Grades 9-10 Energy Sources

Roxana Estrada
*Pace University*

# Differentiated Lesson:

# Energy Sources

by

Roxana Estrada

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Prof. Weiner

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**Unit:** Ecology

**Duration:** One period to assess, group students, and explain activity. Two periods to prepare presentations. Three periods to present material.

**Subject**: Regents Living Environment

**Grade**: Most of the students are 9th graders.

**Hook**: There is a competition currently ongoing which deals with trying to find an alternative source of energy than the one we currently using or improve the one we are using. The winner obtains $25,000,000.00. Now with this in mind we are going to have our on competition and debate.

**Essential Questions:** Which energy source is best for our environment and is cost effective?

**Purpose/Goal**:

1) For students to be able to make decisions and acknowledge that their activities have a profound impact on the physical and living environment.

2) For students to be able to explain the most common energy sources.

**New York State Living Environment Standards**:

***Standard 1***: Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.

*Key Idea 2*: Beyond the use of reasoning and consensus, scientific inquiry involves the testing of proposed explanations involving the use of conventional techniques and procedures and usually requiring considerable ingenuity.

*Performance Indicator 2.2*: Refine research ideas through library investigations, including electronic information retrieval and reviews of the literature, and through peer feedback obtained from review and discussion.

*Performance Indicator 2.4*: Carry out a research plan for testing explanations, including selecting and developing techniques, acquiring and building apparatus, and recording observations as necessary.

*Performance Indicator 3.4*: Based on the results of the test and through public discussion, revise the explanation and contemplate additional research.

*Performance Indicator 3.5*: Develop a written report for public scrutiny that describes the proposed explanation, including a literature review, the research carried out, its result, and suggestions for further research.

***Standard 4***: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

*Key Idea 7*: Human decisions and activities have had a profound impact on the physical and living environment.

*Performance Indicator 7.3*: Explain how individual choices and societal actions can contribute to improving the environment.

**Explanation of Activity**: **Differentiation of a Product**

There will be a total of six groups. However, there are three levels of capacity: entry level, intermediate level, and advance level. I will be placing the students into groups of four. Depending on the student's pre-assessment and level of capacity they will be placed into a level. However, each student will be given two different choices of topic. Students will not know which level of capacity they are placed.

**Entry Level**:

Fossil Fuel and Coal

Solar Energy

**Intermediate Level**:

Hydropower

Windmill power

**Advance Level**:

Biofuel (Corn oil and Algae oil)

Nuclear/Fission Power

Each student has to do research on the chosen topic. Each student has a role in this project which will be detailed in the activity sheet. Each student is given a contract sheet to monitor his/hers progress in the project. During the presentations each student has to pay close attention to others since they will be acting as a panel of judges.

**Checks for Understanding:**

1) Homework summary.
2) Students' discussion of their projects.
3) Presentation.
4) Panelists' role.
5) Quiz

**Next Steps**:

1) Announce winner.
2) Review each topic.
3) Allow each group to come-up with three questions that should be part of a quiz.

4) Quiz

**Assessment Tools:**

1) Presentations

2) Quizzes

**Resources:** Computer, internet, posters, magazines, markers, scissors, glue, and other materials requested by students.

**Assessment on Energy Sources**

Name: _____ Ms. Estrada

Period: _____ Date: _____ Living Environment

1) What energy sources are you familiar?

2) Do you know what is the main type of energy source used in the United States?

3) Do you know of Wind Power and how it works? If so provide a brief explanation.

4) Do you know of Hydropower and how it works? If so provide a brief explanation.

5) Do you know of Solar panels and how it works? If so provide a brief explanation.

6) Do you know of Nuclear/Fission Energy and how it works? If so provide a brief explanation.

7) Do you know of coal and fossil fuel and how it works? If so provide a brief explanation.

8) Do you know of biofuels and how it works? If so provide a brief explanation.




Note: I will be making copies of the bills so I can have an amount of $25,000,000.00!!!!

# Fossil Fuel and Coal Energy

Name: _____ Ms. Estrada

Period: _____ Date: _____ Living Environment

There is competition currently ongoing which deals with trying to find an alternative source of energy than the one we are currently using. The winner obtains $25,000,000.00. Now with this in mind we are going to have our own competition and debate.

**Purpose:** You are to sell your energy source to your classmates!!! You are like a telemarketer. Make your energy source sound as if it is the best energy source!!!

**Final Product:** Your final product is to create a power point presentation.

**Part One – Homework 25%**: You are to research at home the following questions:

1) What is your alternative energy source?
2) How does it work?
3) Does it use any natural resources and manmade resources and if so how much?
4) Is their a limited quantity in your energy source?
5) Does your energy source have an effect on the environment?
6) Does your energy source have an effect on humans and/or animals and if so, please explain?
7) How is your energy source disposed?
8) How much does it cost to generate your energy source? Can it become affordable?
9) Can you see any flaws with your energy source?
10) How can you fix these flaws?

**Note:** You lose 10 points for every day you do not bring your homework. You are to summarize the information you found to just explain the answers. If you have any problems understanding the material you found, highlight it and express you concerns with your teacher.

**Part Two – Group and Individual Work Productivity and Ethics 25%:** You are to work as a team and as an individual. You are to always remain part of your group, be respectful to everybody's ideas, and accomplish your part/role. You are to demonstrate an image of the energy source. This image must be found online. You and your classmates have two periods to complete this part.

Each group member is to choose a role:

*Material Manager:* picks-up/returns materials, facilitates clean-up, and checks to make sure equipment is in working order.

*Tracker:* helps track progress, records data/information for the team, and collaborates with communicator.

*Checker:* helps team understand the activity, facilitates talks about the activity, and it is not the leader, is a facilitator.

*Communicator:* helps resolve problems and can leave the team to communicate, asks specific questions to the teacher.

**Note:** If you need any materials from your teacher please let her know at the end of the first period.

**Part Three – Presentation 25%:** Each group member has to understand the energy source because he or she will have to present part of the project. You will have points deducted if you read word for word from the advertisement. Each group member has to be ready to answer any question from any classmate or teacher. All the questions assigned as homework have to be included in the presentation of the advertisement. Image of energy source has to be in the presentation. Creativity is welcomed!!!

**Part Four – Panelists 25%:** As a panelist's you are to listen carefully to the presenters' presentation. You are to remain silent and be respectful during the presentation and hold your questions to the end of the presentation. You are to ask at least one question to any of the presentations. You are to criticize or find errors in the presentation and you are to point them out in a respectful manner.

***Please see attached rubric.***

# Solar Power

Name: _____ Ms. Estrada

Period: _____ Date: _____ Living Environment

There is competition currently ongoing which deals with trying to find an alternative source of energy than the one we are currently using. The winner obtains $25,000,000.00. Now with this in mind we are going to have our own competition and debate.

**Purpose:** You are to sell your energy source to your classmates!!! You are like a telemarketer. Make your energy source sound as if it is the best energy source!!!

**Final Product:** Your final product is to create a power point presentation.

**Part One – Homework 25%**: You are to research at home the following questions:

1) What is your alternative energy source?
2) How does it work?
3) Does it use any natural resources and manmade resources and if so how much?
4) Is their a limited quantity in your energy source?
5) Does your energy source have an effect on the environment?
6) Does your energy source have an effect on humans and/or animals and if so, please explain?
7) How is your energy source disposed?
8) How much does it cost to generate your energy source? Can it become affordable?
9) Can you see any flaws with your energy source?
10) How can you fix these flaws?

**Note:** You lose 10 points for every day you do not bring your homework. You are to summarize the information you found to just explain the answers. If you have any problems understanding the material you found, highlight it and express you concerns with your teacher.

**Part Two – Group and Individual Work Productivity and Ethics 25%:** You are to work as a team and as an individual. You are to always remain part of your group, be respectful to everybody's ideas, and accomplish your part/role. You are to demonstrate an image of the energy source. This image must be found online. You and your classmates have two periods to complete this part.

Each group member is to choose a role:

*Material Manager:* picks-up/returns materials, facilitates clean-up, and checks to make sure equipment is in working order.

*Tracker:* helps track progress, records data/information for the team, and collaborates with communicator.

*Checker:* helps team understand the activity, facilitates talks about the activity, and it is not the leader, is a facilitator.

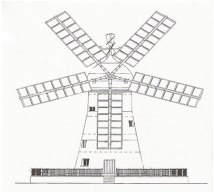
*Communicator:* helps resolve problems and can leave the team to communicate, asks specific questions to the teacher.

**Note:** If you need any materials from your teacher please let her know at the end of the first period.

**Part Three – Presentation 25%:** Each group member has to understand the energy source because he or she will have to present part of the project. You will have points deducted if you read word for word from the advertisement. Each group member has to be ready to answer any question from any classmate or teacher. All the questions assigned as homework have to be included in the presentation of the advertisement. Image of energy source has to be in the presentation. Creativity is welcomed!!!

**Part Four – Panelists 25%:** As a panelist's you are to listen carefully to the presenters' presentation. You are to remain silent and be respectful during the presentation and hold your questions to the end of the presentation. You are to ask at least one question to any of the presentations. You are to criticize or find errors in the presentation and you are to point them out in a respectful manner.

***Please see attached rubric.***



# Windmill Power

Name: _____ Ms. Estrada

Period: _____ Date: _____ Living Environment

There is competition currently ongoing which deals with trying to find an alternative source of energy than the one we are currently using. The winner obtains $25,000,000.00. Now with this in mind we are going to have our own competition and debate.

**Purpose:** You are to sell your energy source to your classmates!!! You are like a telemarketer. Make your energy source sound as if it is the best energy source!!!

**Final Product:** Your final product is to create a magazine or newspaper advertisement.

**Part One – Homework 25%**: You are to research at home the following questions:

11) What is your alternative energy source?

12) How does it work?

13) Does it use any natural resources and manmade resources and if so how much?

14) Is their a limited quantity in your energy source?

15) Does your energy source have an effect on the environment?

16) Does your energy source have an effect on humans and/or animals and if so, please explain?

17) How is your energy source disposed?

18) How much does it cost to generate your energy source? Can it become affordable?

19) Can you see any flaws with your energy source?

20) How can you fix these flaws?

**Note:** You lose 10 points for every day you do not bring your homework. You are to summarize the information you found to just explain the answers. If you have any problems understanding the material you found, highlight it and express you concerns with your teacher.

**Part Two – Group and Individual Work Productivity and Ethics 25%:** You are to work as a team and as an individual. You are to always remain part of your group, be respectful to everybody's ideas, and accomplish your part/role. You are to demonstrate an image of the energy source. This image must be found online. You and your classmates have two periods to complete this part.

Each group member is to choose a role:

*Material Manager:* picks-up/returns materials, facilitates clean-up, and checks to make sure equipment is in working order.

*Tracker:* helps track progress, records data/information for the team, and collaborates with communicator.

*Checker:* helps team understand the activity, facilitates talks about the activity, and it is not the leader, is a facilitator.

*Communicator:* helps resolve problems and can leave the team to communicate, asks specific questions to the teacher.

**Note:** If you need any materials from your teacher please let her know at the end of the first period.

**Part Three – Presentation 25%:** Each group member has to understand the energy source because he or she will have to present part of the project. You will have points deducted if you read word for word from the advertisement. Each group member has to be ready to answer any question from any classmate or teacher. All the questions assigned as homework have to be included in the presentation of the advertisement. Image of energy source has to be in the presentation. Creativity is welcomed!!!

**Part Four – Panelists 25%:** As a panelist's you are to listen carefully to the presenters' presentation. You are to remain silent and be respectful during the presentation and hold your questions to the end of the presentation. You are to ask at least one question to any of the presentations. You are to criticize or find errors in the presentation and you are to point them out in a respectful manner.

***Please see attached rubric.***

# Hydro (Water) Power

Name: _____ Ms. Estrada

Period: _____ Date: _____ Living Environment

There is competition currently ongoing which deals with trying to find an alternative source of energy than the one we are currently using. The winner obtains $25,000,000.00. Now with this in mind we are going to have our own competition and debate.

**Purpose:** You are to sell your energy source to your classmates!!! You are like a telemarketer. Make your energy source sound as if it is the best energy source!!!

**Final Product:** Your final product is to create a magazine or newspaper advertisement.

**Part One – Homework 25%**: You are to research at home the following questions:

21) What is your alternative energy source?

22) How does it work?

23) Does it use any natural resources and manmade resources and if so how much?

24) Is their a limited quantity in your energy source?

25) Does your energy source have an effect on the environment?

26) Does your energy source have an effect on humans and/or animals and if so, please explain?

27) How is your energy source disposed?

28) How much does it cost to generate your energy source? Can it become affordable?

29) Can you see any flaws with your energy source?

30) How can you fix these flaws?

**Note:** You lose 10 points for every day you do not bring your homework. You are to summarize the information you found to just explain the answers. If you have any problems understanding the material you found, highlight it and express you concerns with your teacher.

**Part Two – Group and Individual Work Productivity and Ethics 25%:** You are to work as a team and as an individual. You are to always remain part of your group, be respectful to everybody's ideas, and accomplish your part/role. You are to demonstrate an image of the energy source. This image must be drawn. You and your classmates have two periods to complete this part.

Each group member is to choose a role:

*Material Manager:* picks-up/returns materials, facilitates clean-up, and checks to make sure equipment is in working order.

*Tracker:* helps track progress, records data/information for the team, and collaborates with communicator.

*Checker:* helps team understand the activity, facilitates talks about the activity, and it is not the leader, is a facilitator.

*Communicator:* helps resolve problems and can leave the team to communicate, asks specific questions to the teacher.

**Note:** If you need any materials from your teacher please let her know at the end of the first period.

**Part Three – Presentation 25%:** Each group member has to understand the energy source because he or she will have to present part of the project. You will have points deducted if you read word for word from the advertisement. Each group member has to be ready to answer any question from any classmate or teacher. All the questions assigned as homework have to be included in the presentation of the advertisement. Drawing has to be included in the advertisement. Creativity is welcomed!!!

**Part Four – Panelists 25%:** As a panelist's you are to listen carefully to the presenters' presentation. You are to remain silent and be respectful during the presentation and hold your questions to the end of the presentation. You are to ask at least one question to any of the presentations. You are to criticize or find errors in the presentation and you are to point them out in a respectful manner.

***Please see attached rubric.***

# BioFuel

Name: _____ Ms. Estrada

Period: _____ Date: _____ Living Environment

There is competition currently ongoing which deals with trying to find an alternative source of energy than the one we are currently using. The winner obtains $25,000,000.00. Now with this in mind we are going to have our own competition and debate.

**Purpose:** You are to sell your energy source to your classmates!!! You are like a telemarketer. Make your energy source sound as if it is the best energy source!!!

**Final Product:** Your final product is to create a magazine or newspaper advertisement with a set of blueprints of the energy source model.

**Part One – Homework 25%**: You are to research at home the following questions:

1) What is your alternative energy source?
2) How does it work?
3) Does it use any natural resources and manmade resources and if so how much?
4) Is their a limited quantity in your energy source?
5) Does your energy source have an effect on the environment?
6) Does your energy source have an effect on humans and/or animals and if so, please explain?
7) How is your energy source disposed?
8) How much does it cost to generate your energy source? Can it become affordable?
9) Can you see any flaws with your energy source?
10) How can you fix these flaws? Be creative with how you can fix the current problems!!!

**Note:** You lose 10 points for every day you do not bring your homework. You are to summarize the information you found to just explain the answers. If you have any problems understanding the material you found, highlight it and express you concerns with your teacher.

**Part Two – Group and Individual Work Productivity and Ethics 25%:** You are to work as a team and as an individual. You are to always remain part of your group, be respectful to everybody's ideas, and accomplish your part/role. You are to demonstrate accurate blueprints of the energy source. You and your classmates have two periods to complete this part.

Each group member is to choose a role:

*Material Manager:* picks-up/returns materials, facilitates clean-up, and checks to make sure equipment is in working order.

*Tracker:* helps track progress, records data/information for the team, and collaborates with communicator.

*Checker:* helps team understand the activity, facilitates talks about the activity, and it is not the leader, is a facilitator.

*Communicator:* helps resolve problems and can leave the team to communicate, asks specific questions to the teacher.

**Note:** If you need any materials from your teacher please let her know at the end of the first period.

**Part Three – Presentation 25%:** Each group member has to understand the energy source because he or she will have to present part of the project. You will have points deducted if you read word for word from the advertisement. Each group member has to be ready to answer any question from any classmate or teacher. All the questions assigned as homework have to be included in the presentation of the advertisement. Set of blueprint has to be included in the advertisement. Students' explain clearly the mathematics and mechanics of the energy source. Creativity is welcomed!!!

**Part Four – Panelists 25%:** As a panelist's you are to listen carefully to the presenters' presentation. You are to remain silent and be respectful during the presentation and hold your questions to the end of the presentation. You are to ask at least one question to any of the presentations. You are to criticize or find errors in the presentation and you are to point them out in a respectful manner.

***Please see attached rubric.***

# Nuclear / Fission Energy

Name: _____ Ms. Estrada

Period: _____ Date: _____ Living Environment

There is competition currently ongoing which deals with trying to find an alternative source of energy than the one we are currently using. The winner obtains $25,000,000.00. Now with this in mind we are going to have our own competition and debate.

**Purpose:** You are to sell your energy source to your classmates!!! You are like a telemarketer. Make your energy source sound as if it is the best energy source!!!

**Final Product:** Your final product is to create a magazine or newspaper advertisement with a set of blueprints of the energy source model.

**Part One – Homework 25%**: You are to research at home the following questions:

1) What is your alternative energy source?
2) How does it work?
3) Does it use any natural resources and manmade resources and if so how much?
4) Is their a limited quantity in your energy source?
5) Does your energy source have an effect on the environment?
6) Does your energy source have an effect on humans and/or animals and if so, please explain?
7) How is your energy source disposed?
8) How much does it cost to generate your energy source? Can it become affordable?
9) Can you see any flaws with your energy source?
10) How can you fix these flaws? Be creative with how you can fix the current problems!!!

**Note:** You lose 10 points for every day you do not bring your homework. You are to summarize the information you found to just explain the answers. If you have any problems understanding the material you found, highlight it and express you concerns with your teacher.

**Part Two – Group and Individual Work Productivity and Ethics 25%:** You are to work as a team and as an individual. You are to always remain part of your group, be respectful to everybody's ideas, and accomplish your part/role. You are to demonstrate accurate blueprints of the energy source. You and your classmates have two periods to complete this part

Each group member is to choose a role:

*Material Manager:* picks-up/returns materials, facilitates clean-up, and checks to make sure equipment is in working order.

*Tracker:* helps track progress, records data/information for the team, and collaborates with communicator.

*Checker:* helps team understand the activity, facilitates talks about the activity, and it is not the leader, is a facilitator.

*Communicator:* helps resolve problems and can leave the team to communicate, asks specific questions to the teacher.

**Note:** If you need any materials from your teacher please let her know at the end of the first period.

**Part Three – Presentation 25%:** Each group member has to understand the energy source because he or she will have to present part of the project. You will have points deducted if you read word for word from the advertisement. Each group member has to be ready to answer any question from any classmate or teacher. All the questions assigned as homework have to be included in the presentation of the advertisement. Set of blueprint has to be included in the advertisement. Students' explain clearly the mathematics and mechanics of the energy source. Creativity is welcomed!!!

**Part Four – Panelists 25%:** As a panelist's you are to listen carefully to the presenters' presentation. You are to remain silent and be respectful during the presentation and hold your questions to the end of the presentation. You are to ask at least one question to any of the presentations. You are to criticize or find errors in the presentation and you are to point them out in a respectful manner.

***Please see attached rubric.***

| Fossil Fuel and Coal and Solar Energy Rubric | | | | |
|---|---|---|---|---|
| **Homework - 25%** | Student brings homework on time. Student answers all questions. | Student brings homework on time but answers only three quarters of the questions. | Student brings homework late and answers less than half of the questions. | Student brings homework three days late. |
| **Group and Individual Productivity and Ethics - 25%** | Student respects other classmates' ideas. Student completes his or hers role. Student stays on task. Student remains part of the group. | Student respects other classmates' ideas. Student completes his or hers role. Student has a hard time performing his or hers task. Student does not always remain part of the group. | Student is not always respectful of classmates' ideas. Student partially completes his or hers role and tasks. Student does not always remain part of the group. | Student is not always respectful of classmates' ideas. Student does not complete his or hers role and tasks. Student does not always remain part of the group. |
| **Presentation Delivery - 25%** | Student does not read from the word for word from the presentation. All of the homework questions are answered. Student is able to respond to classmates and teachers questions. Student has a good understanding of the topic. Presentation shows creativity. Model of the energy source is included. | Student reads a little from the presentation. Some of the homework questions are answered. Student is able to respond to classmates and teachers questions. Student has a good understanding of the topic. Presentation shows some creativity. Model of the energy source is included. | Student reads from the presentation. Some of the homework questions are answered. Student is not able to respond to classmates and teachers questions. Student has partial understanding of the topic. Presentation shows some creativity. Model of the energy source is included. | Student reads from the presentation. Some of the homework questions are answered. Student is not able to respond to classmates and teachers questions. Student has no understanding of the topic. Presentation shows no creativity. Model of the energy source is not included. |
| **Panelist's Role - 25%** | Student is silent and is listening to others presentations. Student asks questions in a respectful manner. Student is able to find at least one flaw or error in the presentation. | Student is most of the time silent and is listening to others presentations. Student asks questions in a respectful manner. Student is able to find at least one flaw or error in the presentation. | Student is not silent and is not listening to others presentations. Student asks questions in a respectful manner. Student does find at least one flaw or error in the presentation. | Student is not silent and is not listening to others presentations. Student does not ask questions in a respectful manner. Student does find at least one flaw or error in the presentation. |

| Hydropower and Windmill Energy Rubric | | | | |
|---|---|---|---|---|
| **Homework - 25%** | Student brings homework on time. Student answers all questions. | Student brings homework on time but answers only three quarters of the questions. | Student brings homework late and answers less than half of the questions. | Student brings homework three days late. |
| **Group and Individual Productivity and Ethics - 25%** | Student respects other classmates' ideas. Student completes his or hers role. Student stays on task. Student remains part of the group. | Student respects other classmates' ideas. Student completes his or hers role. Student has a hard time performing his or hers task. Student does not always remain part of the group. | Student is not always respectful of classmates' ideas. Student partially completes his or hers role and tasks. Student does not always remain part of the group. | Student is not always respectful of classmates' ideas. Student does not complete his or hers role and tasks. Student does not always remain part of the group. |
| **Presentation Delivery - 25%** | Student does not read from the word for word from the presentation. All of the homework questions are answered. Student is able to respond to classmates and teachers questions. Student has a good understanding of the topic. Presentation shows creativity. Drawing of the energy source is included in the advertisement. The advertisement is in the form of a magazine or newspaper. | Student reads a little from the presentation. Some of the homework questions are answered. Student is able to respond to classmates and teachers questions. Student has a good understanding of the topic. Presentation shows some creativity. Drawing of the energy source is included. The advertisement is in the form of a magazine or newspaper. | Student reads from the presentation. Some of the homework questions are answered. Student is not able to respond to classmates and teachers questions. Student has partial understanding of the topic. Presentation shows some creativity. Drawing of the energy source is included. The advertisement is in the form of a magazine or newspaper. | Student reads from the presentation. Some of the homework questions are answered. Student is not able to respond to classmates and teachers questions. Student has no understanding of the topic. Presentation shows no creativity. Drawing of the energy source is not included. The advertisement is in the form of a magazine or newspaper. |
| **Panelist's Role - 25%** | Student is silent and is listening to others presentations. Student asks questions in a respectful manner. Student is able to find at least one flaw or error in the presentation. | Student is most of the time silent and is listening to others presentations. Student asks questions in a respectful manner. Student is able to find at least one flaw or error in the presentation. | Student is not silent and is not listening to others presentations. Student asks questions in a respectful manner. Student does find at least one flaw or error in the presentation. | Student is not silent and is not listening to others presentations. Student does not ask questions in a respectful manner. Student does find at least one flaw or error in the presentation. |

| Nuclear Energy and BioFuel Rubric | | | | |
|---|---|---|---|---|
| **Homework - 25%** | Student brings homework on time. Student answers all questions. | Student brings homework on time but answers only three quarters of the questions. | Student brings homework late and and answers less than half of the questions. | Student brings homework three days late. |
| **Group and Individual Productivity and Ethics - 25%** | Student respects other classmates ideas. Student completes his or hers role. Student stays on task. Student remains part of the group. | Student respects other classmates ideas. Student completes his or hers role. Student has a hard time performing his or hers task. Student does not always remain part of the group. | Student is not always respectful of classmates ideas. Student partially completes his or hers role and tasks. Student does not always remain part of the group. | Student is not always respectful of classmates ideas. Student does not complete his or hers role and tasks. Student does not always remain part of the group. |
| **Presentation Delivery - 25%** | Student does not read from the word for word from the presentation. All of the homework questions are answered. Student is able to respond to classmates and teachers questions. Student has a good understanding of the topic. Students' included an accurate depiction of blueprints and explained the mathematics and mechanics of the energy source in the magazine or newspaper article. | Student reads a little from the presentation. Some of the homework questions are answered. Student is able to respond to classmates and teachers questions. Student has a good understanding of the topic. Presentation shows some creativity. Students' included an accurate depiction of blueprints and explained the mathematics and mechanics of the energy source in the magazine or newspaper article. | Student reads from the presentation. Some of the homework questions are answered. Student is not able to respond to classmates and teachers questions. Student has partial understanding of the topic. Presentation shows some creativity. Students' included an accurate depiction of blueprints and explained the mathematics and mechanics of the energy source in the magazine or newspaper article. | Student reads from the presentation. Some of the homework questions are answered. Student is not able to respond to classmates and teachers questions. Student has no understanding of the topic. Presentation shows no creativity. Students' included an accurate depiction of blueprints and explained the mathematics and mechanics of the energy source in the magazine or newspaper article. |
| **Panelist's Role - 25%** | Student is silent and is listening to others presentations. Student asks questions in a respectful manner. Student is able to find at least one flaw or error in the presentation. | Student is most of the time silent and is listening to others presentations. Student asks questions in a respectful manner. Student is able to find at least one flaw or error in the presentation. | Student is not silent and is not listening to others presentations. Student asks questions in a respectful manner. Student does find at least one flaw or error in the presentation. | Student is not silent and is not listening to others presentations. Student does not ask questions in a respectful manner. Student does find at least one flaw or error in the presentation. |

# Human Impact

## Solar and Coal and Fossil Fuel Energy Contract

At the end of this topic, students should…

Know:

- the choices we have as human beings to choose energy sources
- the different energy sources
- how humans make an impact in our environment

Understand:

- Solar Energy - How solar panels function.
- Fossil Fuel and Coal – How fossil fuel and coal function.
- Our decisions as human beings have an impact in our environment.

Be Able To Do:

- use the scientific process
- make scientific observations on energy sources
- communicate information about observations and ideas
- collect, organize, and present data
- use multiple resources to complete research on a given energy source
- describe how the energy source works
- create a power point presentation
- find a picture of a model of an energy source
- present information
- set goals and evaluate work

Main Dish:

1) Research ten questions and write summary - homework

Due Date: Two days after explanation of assignment.

2) Tell your teacher the necessary materials needed.

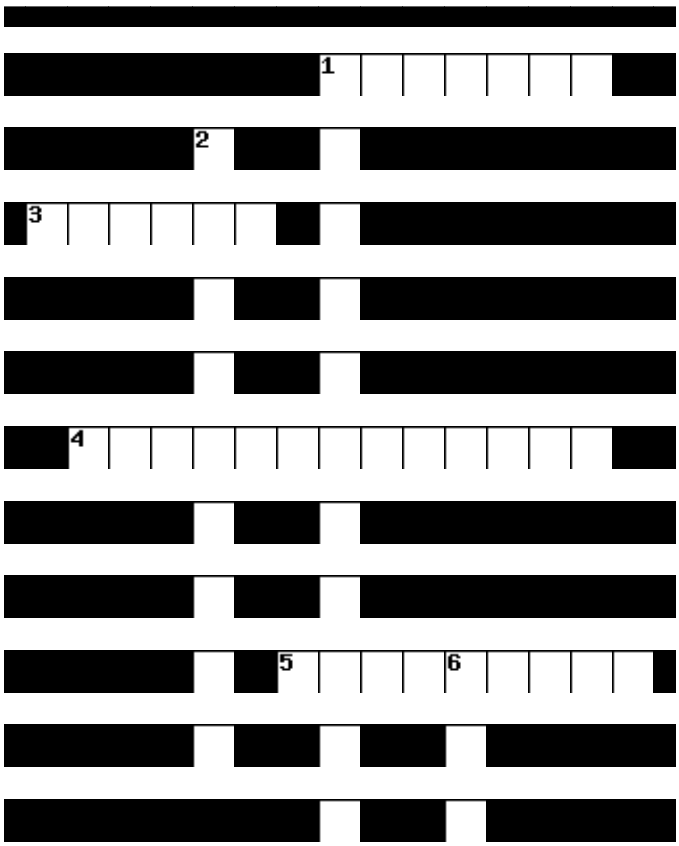
Due Date: At the end of the first period.

Side Dishes: Choose A or B

A: Research on Solar Energy and prepare a power point presentation.

At the end of the first period, you must have collected, organized and have done up to question five of your research questions. By the end of the second period you must be ready to present and have found your picture of your energy source.

B: Research on Fossil Fuel and Coal Energy and prepare a power point presentation.



[redacted] At the end of the first period, you must have collected, organized and have done up to question five of your research questions. By the end of the second period you must be ready to present and have found your picture of your energy source.

Dessert (Optional): If you are done with project.

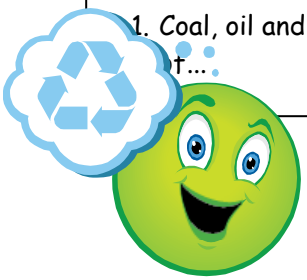
Energy Sources

**Across**

1. This process is used in nuclear power plants.
3. This process is how the sun produces energy.
4. This type of power plant produces energy by harnessing moving water.
5. Resources that do not run out are called…

**Down**

1. Coal, oil and natural gas are examples of…



## nan Impact

## Hydropower (Water) and Windmill Energy Contract

At the end of this topic, students should…

Know:

- the choices we have as human beings to choose energy sources
- the different energy sources
- how humans make an impact in our environment

Understand:

- Hydropower - How watermills function.
- Windmill Energy – How Windmill Energy function.

- Our decisions as human beings have an impact in our environment.

Be Able To Do:

- use the scientific process
- make scientific observations on energy sources
- communicate information about observations and ideas
- collect, organize, and present data
- use multiple resources to complete research on a given energy source
- describe how the energy source works
- create a power point presentation
- find a picture of a model of an energy source
- present information
- set goals and evaluate work

Main Dish:

3) Research ten questions and write summary - homework

Due Date: Two days after explanation of assignment.

4) Tell your teacher the necessary materials needed.

Due Date: At the end of the first period.

Side Dishes: Choose A or B

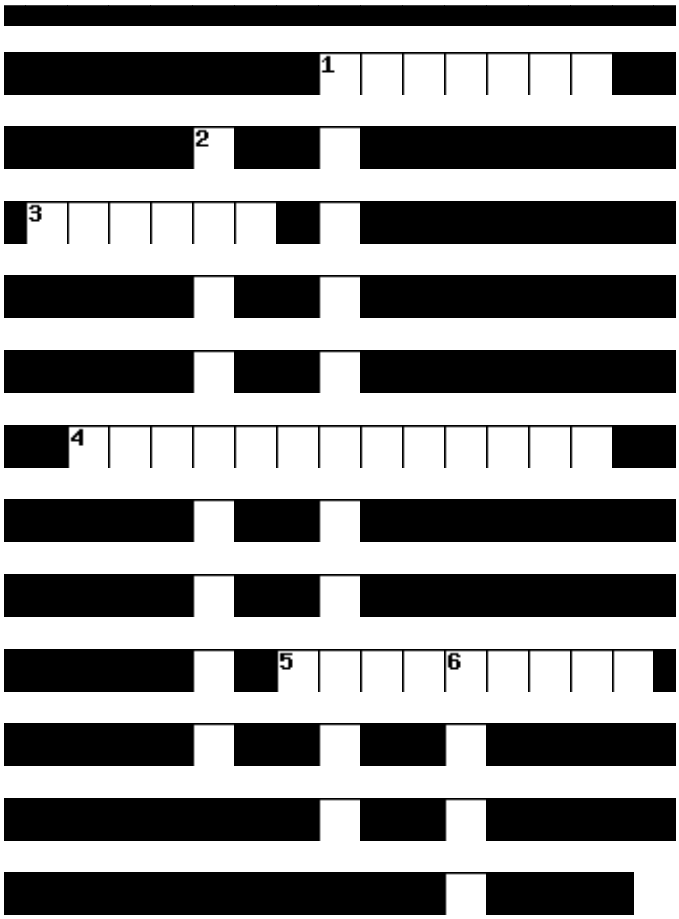
A: Research on Hydropower and a newspaper or magazine ad that includes your drawing.

At the end of the first period, you must have collected, organized and have done up to question five of your research questions. By the end of the second period you must be ready to present and have found your picture of your energy source and have drawn and have included in you ad.

B: Research on Windmill power and newspaper or magazine ad that includes your drawing.

At the end of the first period, you must have collected, organized and have done up to question five of your research questions. By the end of the second period you must be ready to present and have found your picture of your energy source and have drawn and have included in your advertisement.

Dessert (Optional): If you are done with project.



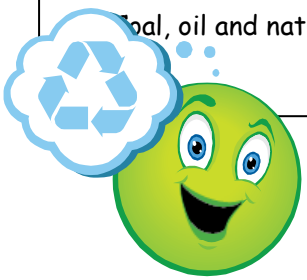
Energy Sources

**Across**

1. This process is used in nuclear power plants.
3. This process is how the sun produces energy.
4. This type of power plant produces energy by harnessing moving water.
5. Resources that do not run out are called…

**Down**

…al, oil and natural gas are examples



## BioFuel and Nuclear/Fission Energy Contract

At the end of this topic, students should…

Know:

- the choices we have as human beings to choose energy sources
- the different energy sources
- how humans make an impact in our environment

Understand:

- Biofuel - How biofuels functions.
- Nuclear/Fission – How nuclear/fission Energy functions.

- Our decisions as human beings have an impact in our environment.

Be Able To Do:

- use the scientific process
- make scientific observations on energy sources
- communicate information about observations and ideas
- collect, organize, and present data
- use multiple resources to complete research on a given energy source
- describe how the energy source works
- create a power point presentation
- find a picture of a model of an energy source
- present information
- set goals and evaluate work

Main Dish:

5) Research ten questions and write summary - homework

Due Date: Two days after explanation of assignment.

6) Tell your teacher the necessary materials needed.

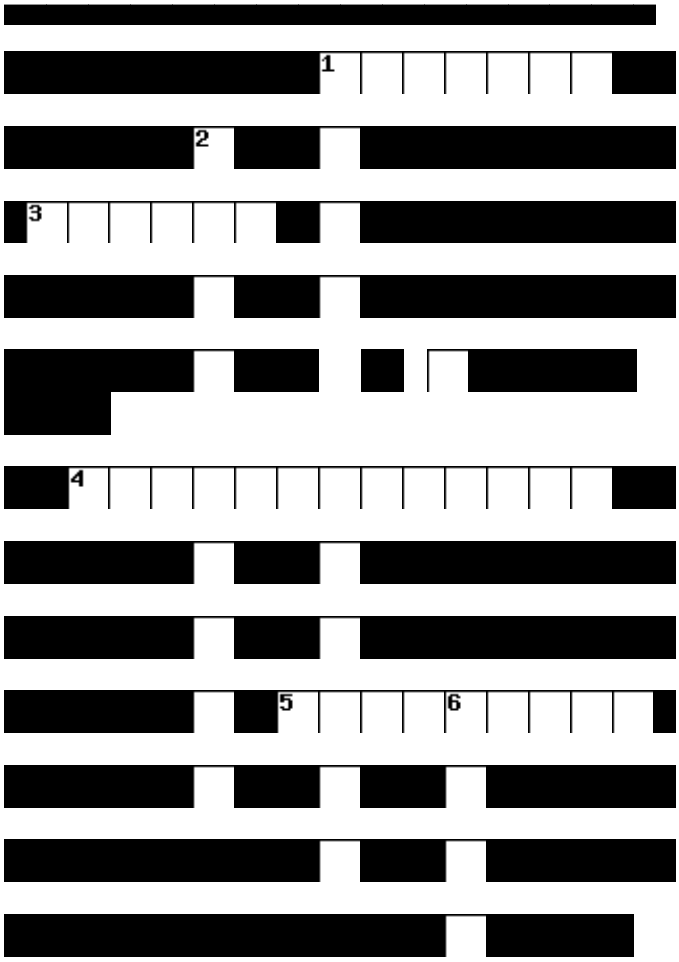
Due Date: At the end of the first period.

Side Dishes: Choose A or B

A: Research on Biofuel and create a newspaper or magazine ad and make blueprints of the energy source.

At the end of the first period, you must have collected, organized and have done up to question five of your research questions. By the end of the second period you must be ready to present and have found your picture of your energy source.

B: Research on Nuclear/Fission and create a newspaper or magazine ad and make blueprints of the energy source.




At the end of the first period, you must have collected, organized and have done up to question five of your research questions. By the end of the second period you must be ready to present and have found your picture of your energy source.

Dessert (Optional): If you are done with project.

Energy Sources

**Across**

1. This process is used in nuclear power plants.
3. This process is how the sun produces energy.
4. This type of power plant produces energy by harnessing moving water.
5. Resources that do not run out are called...

**Down**

1. Coal, oil and natural gas are examples of...
2. A device that can convert sunlight directly to electricity.